THE TREATMENT OF LOCOMOTOR ATAXIA.[1]

By Edward Livingston Hunt, M.D.,
ASSOCIATE CONSULTING NEUROLOGIST, ST. LUKE'S HOSPITAL, NEW YORK.

To outline a definite plan for the treatment of locomotor ataxia is difficult. To lay down hard and fast rules is impracticable. To treat every patient alike is not possible. Conditions are complex and symptoms numerous; in each case there has to be considered the treatment not only of the disease but also of the individual. It is true that the earlier a patient comes under treatment the better will be the results; it is true that the more persistently he remains under treatment the more lasting will be the results; it is true that the more negligent he is of treatment the more disastrous will be the results.

Every case of tabes should have both a physical and laboratory examination. In every case there should be made an ophthalmoscopic examination; in every case there should be made a Wassermann test. In ordering a Wassermann test it should always be remembered that if the blood is taken too soon after the administration of either mercury or arsenic the result will be valueless. Mercury and arsenic for a period of twelve weeks after their administration render the Wassermann test negative.

Locomotor ataxia is a parasyphilitic disease. In its treatment, therefore, it is of importance to weigh the value of salvarsan and mercury. Salvarsan does little good; instances have been reported where its administration has aided, but these cases have been few and early. Nonne thinks that its administration has, for a time at least, relieved some of the symptoms. There has been no real definite proof that in locomotor ataxia any marked or permanent help has followed the use of salvarsan. Such good as has resulted has been of a transient nature, and decidedly questionable. On the other hand, instances have been chronicled where its use has inaugurated an optic neuritis and hastened an optic atrophy. It should not be given if arsenic has been recently administered.

Mercury is of benefit. To my mind its use is indicated in every disease where the etiology has been proved to be syphilitic. In tabes the contraindications to its use are a beginning optic-nerve atrophy, well advanced cases, dyspeptic and anemic cases, and those which show an intolerance or those which have had a great deal of mercury. It is best administered by the hypodermic method, the next best method is by inunction, and the poorest way to administer mercury is by the mouth. The fundus should be examined; if there is any indication of an involvement of the optic nerve neither salvarsan nor mercury should be given.

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The question as to whether or not the patient is in need of mercurial treatment is one difficult to decide. The best guides are the general condition of the patient, the index afforded by the Wassermann test, and the clinical evidence as to whether or not the tabetic process is arrested.

The treatment of the seat of the disease consists of such measures as may be directed toward improving the local nutrition of the cord. These consist (1) of counterirritation, as galvanism, hot and cold applications, and especially the cautery; (2) of measures directed toward stretching the cord. Formerly this was accomplished by having these patients hang from a parallel bar, but more recently there has been adopted a safer and more reliable method, namely, that of flexing the trunk upon the extended legs while the patient is on the floor in a sitting posture.

The treatment of the symptoms can best be considered in the order of their importance and frequency. The first, the most common, and the most distressing symptom of tabes is the pain. It occurs in 88 per cent. of the cases. First, simple external remedies should be tried, such as hot-water bags, the application of sand bags, ironing, ices, iodine, mustard, and plunging the leg in alternating hot and cold baths. Dry cups, the cautery, chloroform liniment, firm bandaging, vibration, massage, and faradization can and should be tried. If in spite of these remedies the pains still persist or tend to become worse the patient should be put to bed and resort had to internal remedies. For this purpose a host of drugs have been employed. One may choose from aspirin, antikamnia, pyramidon, antipyrin, codeine, salpyrin, and even sodium salicylate. A French method, which consists of injecting a week solution of cocaine into the subarachnoid space should also be mentioned. It is neither practical nor free from danger. Finally, there is the hypodermic of morphine. This should only be given by a physician, and then as a last resort. If, however, nothing else relieves the patient it should be given unhesitatingly. It is a curious, but nonetheless true, fact that the particular remedy which will at one time relieve the attack of pain will at another time utterly fail. Rest is a powerful aid, and these patients are greatly benefited by prolonged periods of rest in bed and by nourishing food.

The second most common symptom of tabes is disturbances of the bladder. These occur in 80 per cent. of the cases. Here there are few drugs which can aid us. Strychnine to give tone to the bladder wall, ergot, and urotropin if cystitis has developed. Much can be done, however, by careful attention to the bladder. The patient should be taught to empty the bladder at fixed and frequent intervals, and, if necessary, bladder washings given. The catheter should be kept as a last resort. The passing of sounds, faradizations to the perineum, and even the stimulating of the urethra by local applications of nitrate of silver sometimes help. This aid may only be of a psychic nature, but nonetheless I have seen it help, and consider it justifiable.

Ataxia of the legs occurs in 75 per cent. of cases. Here treatment gives brilliant results. The patient can be taught the Fraenkel exercises. These consist of a series of mild gymnastics, performed at first in bed, later when standing, and finally when walking. The object is to reëducate the legs: first to stand, next to step, and then to walk. The patient should do these exercises without the aid of a stick or his eyes. Persistency is required; a daily course of these exercises should be followed for fifteen minutes in the morning and again in the afternoon. The physician should carefully observe the patient, as the latter is apt to overdo and tire himself. The tabetic is in no way capable of judging of his own capacity, a point which cannot be too strongly emphasized. The Fraenkel exercises are numerous, but space is lacking to go into them here in detail. These exercises can also be applied to the hands; precise and delicate motions can be practised, which will give very remarkable results.

It is important that these patients learn to walk without the aid of their eyes. Let me emphasize that women tabetics are troubled very little with ataxia. This may be due to their skirts. Also that those ataxia cases which become blind, invariably improve in so far as their walking is concerned. These two instances call our attention to the importance of having the ataxia patient walk with his legs and not with his eyes.

The diminution of the sexual desire is unfortunately beyond the aid of the medical man. Tonics and aphrodisiacs can be tried, but usually accomplish but little. Damiana, strychnine, and yohimbin give the best results, but even they prove unavailing.

Perforating ulcer of the foot is an unusual complication. It occurs in 5 per cent. of the cases. The treatment is rest in bed, protection in the form of a local application, and finally stretching of the posterior tibial nerve.

The ocular palsies, involving the second, third, and sixth nerves, occur in about 10 per cent. of the cases. The treatment of these is unsatisfactory. For the diplopia a shaded glass can be worn. I have a patient who suffers from this condition, and to do away with it wears a pair of eyeglasses in one of which the glass is opaque. In cases where there is sixth-nerve paralysis, resort can be had to constant exercises, consisting of training and reëducating those muscles.

Ptosis is always a distressing symptom. It fortunately is not of common occurrence, and frequently yields to antisyphilitic remedies. If permanent, surgical measures may have to be considered. A tuck can be taken which will keep the lid up, but will, of course, not affect the accompanying double vision. Electricity here is of no use.

The treatment for the optic neuritis and for optic nerve atrophy has so far proved unavailing. Strychnine in daily doses may delay the atrophy. Mercury should be stopped.

The joint deformities are difficult to treat. Mechanical appliances sometimes aid, but even amputation may have to be considered. These joint complications, however, do best if let alone.

The crises which occur in tabes are varied and numerous. Contrary to general opinion, they are of unusual occurrence, as one meets with a crisis in only about 6 per cent. of the cases. They are best classified in accordance with the several viscera. The most important for the therapeutist and the one which is most commonly encountered is the gastric crisis. The treatment of the gastric crisis is either medical or surgical. Medical treatment is the least radical and the most practical. The most serviceable drugs are cerium oxalate in 5-grain doses every half-hour, minute doses of strychnine, antipyrin in frequent and small doses, chloral hydrate, cannabis indica, and some of the alkaloids of opium, as codein and dionin. Powdered opium itself can be administered, first in the form of suppositories and later hypodermically. Methylene blue in 1-grain doses has been tried. Oppenheim speaks of injections of cocaine into the epidural and subarachnoid spaces of the spinal canal. Levy and Pope have added to these injections alcohol and stovain. Simple lumbar puncture has been done with but scant results. These latter methods are, however, far too radical and far too impractical to warrant serious consideration in every-day practice. A patient who is subject to gastric crises should have a series of simple and harmless remedies, which he can use when the crisis occurs. If, after repeated attempts there is no abatement, hypodermics of morphine are indicated and should unhesitatingly be given. The hypodermic of morphine should only be given when all reasonable remedies have failed and when the patient has reached a point where decided inroads are being made upon his reserve strength and vitality. This means that every effort should be put forth between the attacks to build up the patient and to feed him so that he will be prepared and ready to withstand an attack of vomiting. It is this intercurrent treatment which is the keynote of the treatment of the gastric crisis.

The surgical treatment, which consists of dividing the posterior nerve roots, has been recently written of and tried by some. Personally I have had no experience with it, and except as a last resort should hardly be inclined to advocate it. A patient with tabes is to my mind not a fit subject for a serious operation, provided that such operation can be avoided.

The laryngeal crises can best be helped by sprays of menthol, and as a last resort cocaine.

The rectal crises can be relieved by suppositories and fomentations. The crises of the other viscera have to be met by the administration of many and varied local remedies as well as by opium. In tabes morphine is a powerful, but a dangerous aid—one to be used with great judgment, but in supreme moments with no hesitation.

The treatment of the mental condition of the patient is important. The tabetic is peculiarly susceptible to suggestion, and is constantly seeking new remedies and outside aid. His condition is ever before him. He is sensitive, easily depressed, and easily exhilirated. Hope springs eternal—undoubtedly a wise provision of nature, and one which should be encouraged. A change of treatment, a new remedy, a new suggestion, however trivial, will often start one of these unfortunates upon a new lease of life. The physician should bear this in mind and never relax in his efforts to make new suggestions and to stimulate hope.

The treatment of the physical condition of the tabetic is all important. The disease is characterized by sudden and unexpected crises and exacerbations. Constant efforts should therefore be made to improve the general health and to fortify the strength. A reserve of energy and force is of great value. The degree of anemia, the blood pressure, and the weight should be closely watched. A tabetic who loses weight is not doing well; a tabetic who gains weight is doing well. A simple but nutritious diet helps; one abounding in fats helps more. Cream, butter, bacon, marrow, and oils are indicated. Baths aid, warm baths especially. They serve to quiet these patients, to relieve the pain, and to improve the general nutrition. Carbonic acid baths are of service. Spinal douches, if not too violent, are useful. General tonics—iron, strychnine, and especially arsenic—are from time to time of great value. If much emaciated, cod-liver oil is indicated; and if the stomach is disturbed, nux vomica may be useful. Constant and unremitting attention must be given to the bowels. One of the great horrors of the disease is the obstinate constipation. Laxatives, plenty of fluids, fruits, and enemas must be used.

So far as climate is concerned, the tabetic does better in summer than winter, and therefore in a warm, dry atmosphere. These patients move about with so great difficulty that few if any obtain sufficient air, a factor which is not sufficiently recognized and one which is of great importance. A change of environment will often prove beneficial. A month spent at Lamalou les Bains in France is very helpful.

Rest is a wonderful aid. Many of these sufferers fail to do well under every condition, but let them spend two or three days in bed and the improvement is remarkable. Rest in bed aids them physically and aids them mentally. Massage is serviceable to them, especially at the beginning. They should be constantly cautioned against physical strains and exhausting effort.

Finally, the treatment of tabes is one in which there should be constant supervision. The greatest attention should be devoted to details. Drugs should be used as sparingly as possible. Air, rest, hydrotherapy, and fattening food should be tried, while the physician should adopt a never-failing attitude of hope and encouragement.

TUBERCULIN THERAPY IN SURGICAL TUBERCULOSIS.

By Thomas Wood Hastings, M.D.,

PROFESSOR OF CLINICAL PATHOLOGY IN THE CORNELL UNIVERSITY MEDICAL COLLEGE, NEW YORK.

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PART V. TUBERCULIN CONTROLLED BY OPSONIC INDEX.

Control by Opsonic Index. Wright[102] (1910) still claims that the opsonic index is of value in diagnosis, and for guidance in dosage in a certain class of cases. On the following pages of the same number of the *Lancet* (page 885) there is recorded a lengthy discussion by Latham, Hewlett, Walters, Warner, and Lawson, and, with the exception of Lawson and Wright, all conclude that a careful observation of clinical symptoms is more valuable than studies of the blood serum for a guide to dosage. Latham[34] and Leishman[103] believe that clinical observation forms a good guide for vaccine therapy.

Management of Dosage. A dose of vaccine followed in twenty-four hours by a rise in temperature, or increase in fluctuation of temperature, or by exacerbation of symptoms, is too large. A dose producing no effect upon the temperature, and no change upon the symptoms, is too small. The proper dose is one which either lowers the temperature or is followed by a diminution in the fluctuation of temperature, and by improvement in the symptoms; and when the effect of the proper dose becomes less, the dose should be increased; but the dose which gives good results should be repeated. These rules apply also to tuberculin therapy.

Inman[98] states that it is essentially an individual treatment. There are three guides: (1) The general condition of the patient; symptoms, physical signs; (2) the temperature curve; (3) investigation of the serum. Each is valuable, but together each is more valuable.

Emery[35] states that the opsonic index affords no clue to the antibodies formed, and that the same benefits may be obtained by simpler methods. Control by the opsonic index, or any other method of serum examination seems unnecessary. Wright's[102]